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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,256	09/08/2003	Anbo Wang	3811-007-27	8598

7590

11/17/2005

Supervisor, Patent Prosecution Services
PIPER RUDNICK LLP
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Washington, DC 20036-2412

EXAMINER

KIANNI, KAVEH C

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,256

Applicant(s)

WANG, ANBO

Examiner

Kianni C. Kaveh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 and 32-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-31, 40 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election with traverse of claims 25-31 and 40-41 in the response submitted on 8/29/2005 is acknowledged. The traversal is on the ground(s) that search and the examination of the entire application can be made without serious burden. This is not found persuasive because the processes/methods of claims 1-41, as indicated at least in the previous office action, are directed to different groups of embodiments and/or inventions, each having different limitations. Thus, each of the group inventions directed to an invention that is distinct, and requires a different search, than that of other inventions. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 40 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the step(s) that define any relationship between the step of 'launching an optical pulse into the optical fiber' and preceding and/or subsequent step(s).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25-31 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cielo (US 4400056).

Regarding claim 25, 40 and 41, Cielo teaches a method comprising the steps of: forming a mask /plurality-of-masks 16 over an optical fiber 10, the optical fiber having a core 12 surrounded by a cladding 14, the mask/each-mask 16 having a single opening 26, the openings of the plurality of masks 16 being spaced a part; exposing the opening/each-of-the-openings 26 to radiation such that a refractive index of a portion of the fiber corresponding to the opening is changed (see at least abstract), whereby light propagating in the optical fiber is reflected at a first end and at a second end of the portion/each-of-the-portions and propagates backward along the optical fiber (shown in

at least fig. 1 and 4, item reflected light from the ends of the portion), light reflected at the first end of the/each portion interfering with light reflected from the second end of the/each portion such that changes in a depth of the portion result in observable changes in an amplitude of such reflected light (see col. 5, lines 1-13); measuring amplitudes of backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the portions of the optical fiber whose refractive index was changed during the exposing step (see col. 5, lines 1-13); forming a first sensor 30 in an optical fiber 10 (see also col. 1, last parag.-col. 2, 1st parag.); a plurality of sensors 30 are formed in the optical fiber 10; the plurality of sensors 30 being spaced apart; launching an optical light into the optical fiber, the optical fiber having a plurality of optical sensors 30 formed therein, and measuring amplitudes of a backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the plurality of optical sensors (see col. 5, lines 1-13; regarding launching of the optical pulse the arguments presented in rejection of claim 40 above).

However, Cielo does not explicitly state that the above depth is a depth, and a step of launching an optical pulse into the optical fiber. It is obvious/well known to those of ordinary skill in the art that the depth of resultant pattern such as grating pattern formed by the photo-mask is/known as the a depth, and it would have been obvious to a person of ordinary skill in the art when the invention was made to modify launching of light by Cielo into the optical fiber 10 shown in at least fig. 1, as pulsed since such sending of pulse signal instead of an analog signal is extremely

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conventional and since such pattern of depth(s)/width(s) would provide tunable distribution feedback reflector made in a length of fiber (see col. 1, 1st parag.).

Regarding claims 26-31, Cielo further teaches wherein the exposing step results in a change in a refractive index of the core and/or cladding (see at least abstract); wherein the exposing step is performed using a laser beam (see col. 6, 3rd parag.); wherein the fiber is doped with germanium (see col. 1, 2nd parag.); wherein exposing step is performed using an energized ion beam (see col. 3, lines 45-62; also col. 1, 2nd parag.).

Citation of Relevant Prior Art

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

At least one of the below references teach claim 25 as well as launching an optical pulse(s) into optical fiber/waveguide

US 6067391 A Land; Peter L.

US 5951881 A Rogers; John A. et al.

US 5706375 A Mihailov; Stephen J. et al.

US 5699468 A Farries; Mark et al.

US 5943124 A Haigh

US 20020146047 A1 Bendett, Mark P. et al.

US 20020076149 A1 Deacon, David A.G.

US 5951881 A Rogers; John A. et al.

US 5641956 A Vengsarkar; Ashish M. et al.

US 5841131 A Schroeder; Robert J. et al.

US 5706375 A Mihailov; Stephen J. et al.

US 5699468 A Farries; Mark et al.

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or:

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni
Primary Patent Examiner
Group Art Unit 2883

**KAVEH KIANNI
PRIMARY EXAMINER**

November 9, 2005